(pronounced "genie")

GeoEnergy of New York's

Geothermal HVAC Primer *PLUS*

featuring

GEONRG™

Next Generation Geothermal Technology

GeoColumn® based Geothermal HVAC Systems

GeoEnergy of New York

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A Geothermal HVAC Overview

As energy costs continue to climb the earth's mass, a natural resource and a renewable energy supply, increases in importance and value. GeoNRG™ has developed and is now marketing some of the industry's most efficient residential and commercial geothermal heating and cooling systems available today. Our systems utilize the earth's mass, which is at a constant temperature of 55 to 60 F degrees as a major component for its energy supply. GeoNRG's products are state-of-the-art products designed and installed by teams of dedicated individuals and companies driven to give you a superior experience and installation.

In heating season, geothermal system heat exchangers are in contact with the warmer earth mass or underground aquifer. In contrast a conventional heat pump systems contacts colder ambient outdoor air. These configuration differences benefit the geothermal system by requiring less energy to heat the same area as an air-to-air system and thus offering substantial operational savings and no CO or CO_2 emissions. Geothermal HVAC systems also make buildings more comfortable in winter months by not over-drying the air by use of high temperature fossil fuel burning, which lowers indoor humidity levels thus often requiring adding additional humidification equipment.

Geothermal HVAC systems offer a substantial benefit over conventional HVAC systems in the cooling mode. As outside temperatures increase during the summer months so does ambient humidity (and the total mass being conditioned). Conventional air conditioning systems rely on a refrigerant to air heat exchange to cool a building and are limited in their ability to remove moisture from the warm

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humid air inside a building. These systems often leave a building feeling cold and damp in the summer, as they overcompensate in cooling to make up for the inability to control indoor humidity. Additionally, conventional air conditioning systems are normally oversized to the load, which further reduces their efficiency. Geothermal HVAC systems actually heat exchange utilizing the much cooler and dryer underground environment therefore producing a dramatic reduction in the humidity levels inside a building. Geothermal systems can make buildings more comfortable in the summer months by lowering both the indoor humidity and the temperature.

Geothermal system operating cost savings/cost comparison for various heating and cooling systems is analyzed below for a typical LI Home versus other types of heating equipment with A/C[1]:

Propane: $3,200.00/year
Fuel Oil: $3,000.00/year
Electric Resistance: $3,800.00/year
Conventional Heat Pump: $2,500.00/year
Natural Gas: $1,400/year
Geothermal Heat Pump: $900.00/year

It can be seen that the installation of a geothermal HVAC system will help you to save money now while hedging against any future fossil fuel cost increases. With available GeoEnergy of New York financing programs you can actually develop a positive cash flow using our system as compared to your present heating and cooling system and those savings can amount into the tens of thousands of dollars over the life of the equipment!

[1] See your salesperson for details

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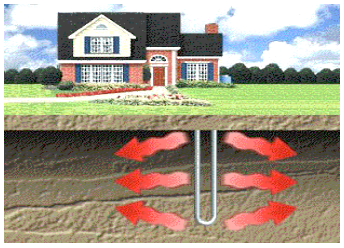
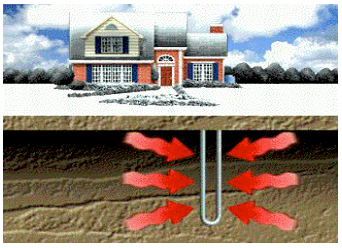
Geothermal Heat Pump Primer

A graphic representation of the basic geothermal operational principals is seen below:

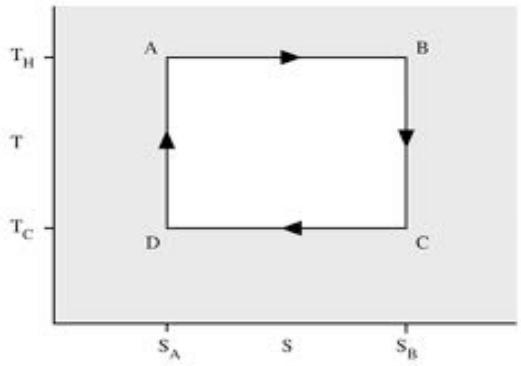


System sheds heat to earth in summer



System absorbs heat from earth in winter

In the picture on the left (summer), heat is adsorbed by a heat transferring gas that takes the heat inside your structure and puts it underground where it is transferred to the earth's mass. In the picture on the right (winter), heat is adsorbed from the ground's mass and transferred into your structure. While the ground mass's temperature is only 50F or so the principles of the Carnot Cycle and the natures and properties of certain gasses allow that 50F ground temperature to ramp up to 120F indoors in winter heating season and likewise to take 100F summer temperatures and cool them down to 70F indoors!



The Carnot Cycle [2]

[2] The Carnot Cycle not only allows this heat transfer to occur but also multiples the energy utilized by, in the case of geothermal HVAC, up to four to five times by use of a heat pump[2]. So for every dollar you spend in electrical energy you will receive four dollars or more back in actual energy (heat in or heat out). Nifty.

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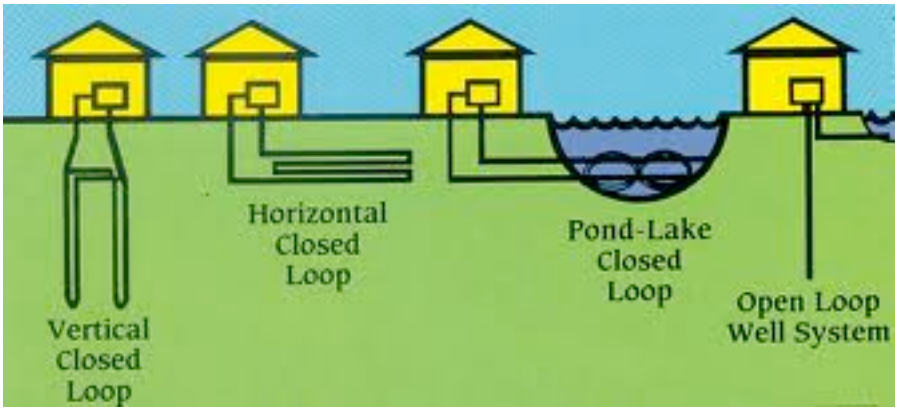
By way of further background, there are several types of geothermal systems including water source, direct exchange and hybrid direct exchange (also see Appendix D).

- Open loop water source systems uses underground water like the aquifer to transfer heat energy to/from.
- Closed loop systems can be either water source or direct exchange (DX)[3] type and either of those types can be vertically, horizontally or, less frequently, surface water configured:



Water Source – Open Loop Systems

The open loop system takes advantage of a large local source of water. This can be a pond, lake, river, other groundwater source or, most commonly, the aquifer itself. As its name implies, the open loop system pumps water from the source, extract or expel heat to or from that water, and then dumps the heated or cooled water back into its original source.

Open loop systems require a both a supply side, often a deep well, and a return side, often another deep well. In the case of an aquifer based open loop system, the return well must be approximately 80 to100 feet away from the supply well and also properly sited in relation to the flow of the aquifer so as to not affect the intake supply well temperature.

[3] A direct exchange (DX) geothermal heat pump system is a geothermal heat pump system in which the refrigerant circulates through copper tubing placed in the ground. The refrigerant exchanges heat directly with the soil through the walls of the copper tubing.

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Open loop systems pump water from the supply well into the heat pump system's water-to-refrigerant heat exchanger. There the water-borne heat is extracted or expelled from that water and to the refrigerant gas that is also circulating through the heat exchanger. This warmed or cooled refrigerant gas is then run through the heat pump's indoor refrigerant system and used to heat or cool the building. The heated or cooled water is then returned to its source via the return well.

As underground water is at a relatively constant temperature year-round, it is a good source from which heat can be extracted and a good heat sink into which heat can be expelled. In general open loop systems are the most energy efficient geothermal HVAC systems.

Water Source – Closed Loop Systems

The "Closed Loop" system, by contrast, circulates a heat exchange fluid through a pipe that is placed into a constant temperature heat sink/heat source (such as the earth's mass) instead of continuously pumping fresh water. These systems use long, continuous, closed loops or coils (200 to over 400 feet in length) of 2-inch diameter plastic pipe buried either horizontally or vertically in the ground.

Horizontal closed loop water source systems can be placed either in a large body of water, such as a pond or lake (pond loop system) but this requires the close proximity to a body of water. More common horizontal closed loop system's piping runs are installed directly into the ground in long horizontal trenches.

Another approach is the Vertical Closed Loop system. This is basically a 4 to 6 inch diameter hole that can be one hundred to several hundred feet deep into which the same plastic pipe arrangement is utilized but set on a vertical plane.

Both closed loop systems generally use an antifreezing agent, such as propylene glycol, ethylene glycol or methanol, rather than using unconditioned water within the loops. The antifreeze is required as the fluids circulating in these loops, while in

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heating mode, can attain operating temperatures lower than 32 degrees Fahrenheit which could cause ice to from in an unconditioned water medium.

These water source systems often require the utilization of licensed plumbing or mechanical contractors in addition to the HVAC personnel. The plastic loops must also be professionally fusion plastic welded at each joint. Leaks in these underground pipes will generally result in the failure of the heat exchanger field. While popular with many geothermal installers it is not GeoEnergy's favorite ground heat exchange system.

SuperG™ Vertical Borehole and Mark-K™ Horizontal Field
Direct Exchange Closed Loop Systems

Direct exchange heat pumps can be either air-to-air or geothermal systems. Direct exchange (DX) geothermal systems use arrays of 3/8" or 1/2" diameter copper tubing that is buried underground and in direct contact with the soil either in horizontal or vertical fields (also see Appendix C). The copper tubing then utilizes a heat transferring gas that travels through these tubes and exchanges the refrigerant's temperature with the earth's mass. The differential temperatures of the refrigerant gas and the soil allow for this heat transfer to take place. Eliminating the water-to-refrigerant heat exchanger leads to potentially more efficient system operation.

GeoEnergy of New York's SuperG™ vertical borehole systems are perfect for areas where there is a high water table (higher than 23' from grade) coastal regions where the land area to install geothermal is tight. These systems utilize a 100' deep borehole per ton of conditioning into which the copper tubed heat exchanger is placed. The borehole is then filled with Super Grout that both protects the copper coils from the ground environment as well as provides superior ground contact. Super Grout is a non-hazardous material that will not interact with either soil, aquifer or other ground water systems.

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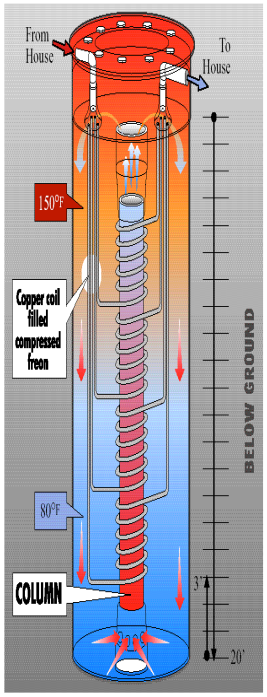
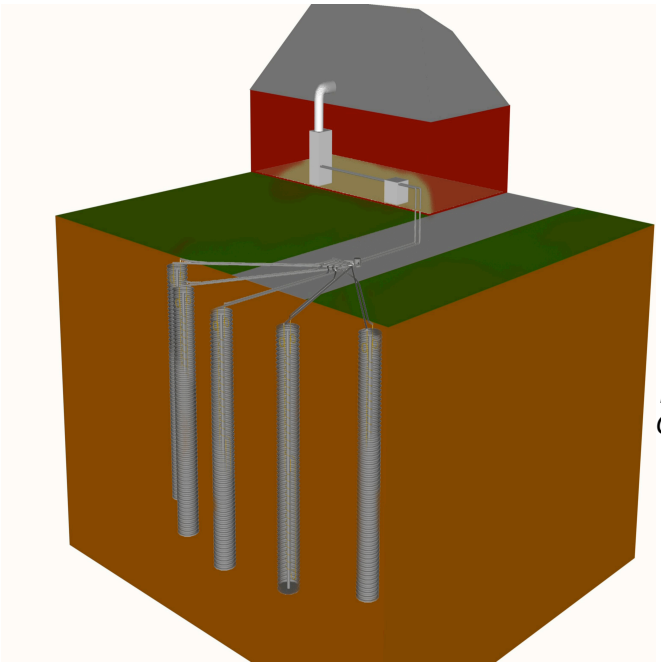
Our Mark-K horizontal field systems are a good choice where there is plenty of land area to work with or for new home or renovation contractors who have access to conventional earth excavation equipment. In this system trenches or a large pit is dug and the copper tubing, bedded in rock dust or limestone tailings is laid out within the pit and recovered.

The GeoColumn Hybrid HX System

GeoEnergy of New York is pleased to introduce the 4th generation hybrid geothermal direct exchange heat exchanger system, the GeoColumn®. This system eliminates pre-engineering of the heat exchanger and heat exchanger field and also dramatically lowers the ground area and/or well depth requirements. The GeoColumn lends itself to regions with loose particulate soil or low density rock formations with depths of 23 feet or greater from grade.



The GeoColumn®



A Typical GeoColumn® HX Array

The GeoColumn geothermal heat exchanger is a patented design that covers a subterranean heat exchanger containment vessel containing a copper tube

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refrigerant-to-water heat exchanger that is submerged in a fluid mass. As shown in the picture above, the GeoColumn is a factory sealed and tested, rigid 24" diameter HDPE containment vessel that is 20 feet in overall length. It contains a copper tube refrigerant gas heat exchanger submerged in unconditioned tap water; therefore it is a "hybrid" direct exchange system with unique properties.
The GeoColumn is a patented design that covers a subterranean heat exchanger containment vessel containing a copper tube refrigerant-to-water heat exchanger that is submerged in a fluid medium. As shown in the picture above, the GeoColumn is a factory sealed and tested, rigid 28" diameter HDPE containment vessel that is 20 feet in overall length. It contains a copper tube refrigerant gas heat exchanger submerged in unconditioned water; therefore it is a "hybrid" direct exchange system with unique properties.

As compared to the Water Source or Direct Exchange (DX) systems previously discussed, the GeoColumn only requires a 23-foot deep borehole. The GeoColumn's copper-nickel (CuNi) tube heat exchanger is surrounded by a large stationary fluid mass (which is tap or municipal water and moves within the column via the thermal convection effects of the refrigerant temperature) and unlike closed loop water source systems, does not require any anti-freezing agents nor does it normally thermally interact with the deeper fresh water aquifers such as with open and sometimes closed loop systems. The Plastic Pipe Institute rates the in service life of HDPE used in the GeoColumn to well over 600 years and the GeoColumn's internal refrigerant-to-water heat exchanger is constructed of Cu Ni copper tubing which when exposed to the unconditioned water mass such as in the GeoColumn has an indefinite life. Thus we can see that the GeoColumn has been designed for a long in-service life.

The GeoColumn's compact size and shallow borehole typically reduces the excavation and drilling costs. The GeoColumn's small footprint feature is ideal for all types of installations but is especially well suited in areas of limited ground availability such as in the suburbs, strip malls, stand alone restaurants as well as retrofits of existing homes and businesses.

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The major benefits of GeoColumn and its materials of construction are as follows:

- a rigid unit will be shipped complete with internal heat exchanger as a sealed, leak tested unit reducing on-site installation time and on-site installation errors
- these containments offer high water mass to ground conductivity there by reducing the total area required for the heat exchange to take place
- these rigid HDPE units are constructed using a corrugated configuration that increases the containment's surface to soil contact ratio, the ratio of a 1-ton GeoColumn's surface area exceeds the normal surface area for a similar 1-ton plastic pipe closed loop system
- these rigid HDPE containments are structurally sound and have a long record of successful in-ground applications
- HDPE is not seen by industry professionals and health experts as a source of phthalates, thus potentially eliminating the HDPE plastic containment unit as a source of aquifer contamination
- all of the submersible heat exchanger components are constructed of seamless CuNi ACR copper tubing
- in the event of a leak of either water from the containment vessel or refrigerant gas from the copper tubing, the removable lid of the GeoColumn is normally only 3 feet below ground making repairs to either practical
- The entire GeoColumn can be pulled from the earth mass and replaced with another unit. This is the only geothermal hx we are aware of with this feature.
- in the event of a critical refrigerant leak, the copper tube heat exchanger can be removed, repaired or replaced. (It should be noted that the refrigerant utilized in the GeoColumn system is synthetic and poses no danger to contamination of the soil, ground water or the air to which it escapes).

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- The GeoColumn is the only factory warrantied ground heat exchanger we know of! (see Appendix F)
- Also please see Appendix A for a side-by-side comparison of the GeoColumn technology as compared to other GHP systems

The Energy Star Program

There are several programs within our region that can help to offset the costs related to the installation of energy efficient or renewable energy products and we could provide help in maximizing those programs but the most significant of those is the Energy Star program. Under this program up to 30% of the total cost for these energy upgrades are subject to a Federal Tax Credit for residential installations. All such GeoNRG geothermal HVAC systems are Energy Star compliant however it is recommended that you consult your tax professional for their advice on your particular situation.

A Word About Refrigerant Gases and Oils

All air conditioning equipment and heat pumps operate, as we described above, by utilizing the compression and expansion of a refrigerant gas to either add or remove heat from the structure. What is also important to remember is that the heat transfer fluid utilized by GeoNRG, R 410a, is a non-ozone depleting substance should it somehow be released into the atmosphere; however responsible installation and servicing methods virtually eliminate such release. Another little known fact about substances such as R 410a is that they both are a renewable and a recyclable substance. Unlike other substances, such as fuel oil, natural gas, propone or biomass, such as wood, which need to be burned (releasing CO, CO2, particulates, etc. into the atmosphere) the refrigerants used in today's heat pumps should easily last the lifetime of the equipment. And when that equipment is eventually replaced at some time in the future the refrigerant substance inside of it, by law, will be recovered and recycled into new product for future use!

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In order to meet the demands of modern refrigeration and heat pump systems the lubricating oil that is carried by the gas or fluid (such as with a 2-cycle engine) to lubricate the system's moving components. These refrigerant oils are also of a special nature. The oil used in conjunction with R 410 a, is ployolester oil, or POE oil, which is the same oil as often used to lubricate modern jet turbine engines. Therefore POE oil is a modern, highly engineered product and as such it is considered safe, non-toxic and non-hazardous by governmental regulating agencies.

Pre-Purchase and Operational Recommendations Guide

Thank you for your consideration and selection of GeoNRG's™ GeoColumn® DXS Heat Pump System for your home or business! These GeoNRG™ GeoColumn® Heat Pump Systems are designed to offer low cost heating and cooling, supplemental hot water heating and a long life, but in order to both obtain and maintain maximum benefits from your new geothermal HVAC system it is recommended that a few simple pre-installation, operational and maintenance operations and suggestions be followed. The purpose of this section is to describe these operations for both your information and guidance in the obtaining a well-balanced installation and successful operation over the life of your system.

Pre-Purchase Considerations

IMPORTANT NOTE: as geothermal heat pump systems have unique operational parameters, they will need to be connected to either ductwork (for heating and cooling) or to radiant floor (for heating only) systems.

Geothermal heat pumps are highly engineered, high performance heating and cooling systems often 400% or more efficient than alternative systems. To obtain this high efficiency several factors need to be addressed.

First, your system needs to be correctly sized to meet the anticipated heating and cooling loads. As such, and to qualify for the Energy Star geothermal rebate

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program, your dealer/installer MUST preform a heating and cooling load calculation (known as the Air Condition Contractors of America (ACCA) Manual J calculation, version 8) to determine your structure's loads. In preforming this calculation GeoNRG has to use the Energy Star recommended heating (70F to 72F) and cooling (72F to 74F) temperatures to determine the heating and cooling loads for your structure. With that information and any special considerations (see below), your dealer/installer will select the correctly sized equipment for your application. As this Manual J is a requirement of the Energy Star program and just as importantly will prevent you from purchasing a system that is too small or too large, it is an important and mandatory requirement in your final equipment selections!

Second, just as important as the selection of the properly sized equipment is the condition and design of your ductwork or hydronic heating system. It makes little sense to install a high performance system and then to connect it to a leaky, inefficient, or improperly sized ductwork system.

Third, geothermal heat pumps do not supply heat at fossil fuel temperatures of 140F or higher but instead will supply air at comfortable temperatures of approximately 100F to 110F. In order to obtain the maximum energy benefit, GeoNRG recommends that thermostat heating setbacks NOT be employed but rather just set the thermostat at Energy Star recommended 70F to 72F in heating and 72F to 74F in cooling and let the system run rather than making any adjustments to the thermostat's settings.

IMPORTANT NOTE: If your particular application has special considerations that would require different heating or cooling temperatures in the entire structure or within certain areas of the structure, you need to inform your GeoNRG dealer/installer of these requirements while in the design phase of the process as special, extra cost equipment may need to be installed (such as supplemental heating, humidification, dehumidification and zoning systems). Without such special instructions GeoNRG dealer/installers will normally design the system for maximum efficiency.

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Operational Considerations

IMPORTANT NOTE: Your home's or business's structures are quite like the people who inhabit them - alike in many respects - but unique in many respects as well. As such structures that are identical to one another can often have quite unique operational characteristics compared to one another. For example, the number, age and personal habits of people living in a home will have an effect on the load, as well as what those inhabitants deem to be a comfortable environment both temperature-and-humidity-wise room-to-room. In today's energy conscious world the norm is the Energy Star recommended 70F to 72F in heating and 72F to 74F in cooling. Just like your automobile that is designed to give maximum efficiency at 55 to 65 MPH, geothermal heating and cooling systems are designed to operate within those design temperature ranges. So if you like to constantly accelerate quickly, speed or often jam on the brakes, your automobile will cost more to operate than one that is driven within the design parameters. The same bears true for your geothermal heating and cooling system so to obtain maximum design operation set your geothermal system's temperature at 70F to 72F in heating and 72F to 74F in cooling and keep it there.

All of GeoNRG's™ brand of GeoColumn® HVAC systems are heat pump based systems and as such there are several major differences from both fossil fueled heating systems, air-to-air air conditioning and air-to-air heat pump systems that need to be understood.

Fossil fueled heating systems (natural gas, propane or fuel oil) are either hot water or hot air based systems that generally "supply" such heat at very high temperatures (140F or higher) as required by the call for heating from the thermostat. These systems have also traditionally been oversized for their specific needs (e.g. installing a 120,000 btu furnace in a home with a 60,000 btu true load) in order to provide "additional comfort". However, this high capacity, high temperature air can quickly remove humidity from the interior's air sometimes causing a very dry and uncomfortable indoor environment often requiring the addition of a humidifier to add that moisture back to the interior air mass (or to use your automobile as an example, that is kind of like accelerating quickly and than

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jamming the brakes on to keep an even speed). Geothermal heat pumps, on the other hand utilize lower, less drying temperatures of 95F to 110F that remove will less humidity from the interior air and as such, normally do not require additional humidification equipment to be added and operated and keeping the geothermal system's thermostat at an steady, even temperature is the way towards such efficient, comfortable system operation. Because many fossil-fueled systems are oversized, owners have had the ability to set thermostats for fossil fueled heating systems on an "over-night" set back which is lowering the daytime heating temperature (say 70F) approximately 5F or more overnight. These oversized systems have the capacity to recover this setback relatively quickly and so this "thermostat set back" can make sense in many cases, especially in colder climates. Because geothermal systems are appropriately sized using the mandatory Manual J calculation (that is, the system is sized to maintain the design temperature of the home during the coldest expected days in your city), there is not much additional "boost" available to quickly increase the home's temperature on those coldest days without using some type auxiliary heating.

Air-to-air or "conventional" air conditioning systems can also be oversized on the cooling side for various reasons including matching the heating capacity in cold climates or over-estimating the cooling requirements of a home in warm climates. When air conditioners over oversized, they do not operate at maximum efficiency and they fail to reasonably dehumidify indoor air often creating a cold and clammy indoor environment. In cooling, geothermal heat pumps take advantage of the cooler ground temperatures experienced by the GeoColumns to provide greater removal of moisture from the interior air than those conventional air conditioning systems and as such do not normally require additional dehumidification systems to be added or operated.

Another tip that you may want to consider is to set the thermostat to "circulate" mode in either heating or cooling to aid in the distribution of the conditioned air, which will help to reduce "hot and cold spots", help to better filter dust from your home's air, and aid in dehumidification during cooling. Your GeoNRG HVAC

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Partner will be glad to assist you in programming your thermostat to obtain maximum comfort and system operational efficiency.

GeoNRG's™ brand of GeoColumn® HVAC systems require less maintenance than conventional air conditioning systems, fossil-fueled furnaces or boilers and air-to-air or water-source geothermal heat pump systems. Water-source geothermal systems use either a water supply well and return well, or a water (closed) loop system. Both need circulating pump inspections and maintenance as well as supply and return well maintenance for open loop systems. The GeoColumn system has no water pumps involved in the ground heat exchange process. Conventional air-to-air heat mumps require seasonal maintenance to the outdoor units for cleaning the air coils for the system to maintain performance. The GeoColumn outdoor heat exchanger itself has no moving parts to wear out. The GeoNRG system's major components are indoors and underground, so they are not exposed to outdoor elements like conventional heat pump systems. Nor do they need the annual cleaning and adjustments that a fossil-fuel burning furnace or boiler requires.

The GeoNRG HVAC partner who installed your system can provide you with a Preventive Maintenance (PM) program for your GeoColumn® system to keep it in tip-top shape.

The PM program consists of inspecting:

- Air Handler: to clear any debris that may have accumulated there, to check the air coils and to replace any air filters as required (air filters should be replaced monthly or more often as required by other issues, such as pets), to inspect fan operation and to check and clear condensate drains;
- Compressor: while running: to check suction and head refrigerant pressures and to ensure those pressures are within the acceptable working ranges and to check the electrical contactor and associated components for proper operation;
- GeoColumn: to check the float switch and temperature sensors for proper operation and to look for any discrepancies or anomalies in those readings.

The PM program can be preformed yearly or semi-annually. The semi-annual inspections occur prior to the cooling and heating seasons. The yearly program can occur prior to either season. These same inspections can be provided on a will-call

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or as-needed basis. Please inquire to your GeoNRG HVAC partner for more details and pricing on this service.

GeoNRG™
Product Overview

Direct Expansion - " DX" Series

Units operate without a source of water by burying copper refrigerant tubing directly in the ground. Refrigerant is warmed in winter and cooled in summer by direct contact with the ground. Available as a split compressor and remote air handler (DXS) or as a complete package system as shown at left. Now available with the new, groundbreaking GeoColumn heat exchanger technology and new DX-to-Water models too!

Triple Function - "TF" Series

Units provide hot air or full capacity hot water on demand with priority set to the air side of the machine. This means that the unit will automatically look after the heating or cooling of the home as required by the thermostat ... any off cycle time can be used to generate full capacity hot water. Excellent for infloor heating on one floor or area with ducted heating and cooling in another.

Indoor Pool Conditioners - "PC" Series

Units operate by dehumidifying the pool room area and returning the latent heat back to the pool water. Properly sized units generally will also provide enough excess heat to condition the air in the pool room. An integral plenum heater attachment also allows the homeowner to initially bring the pool up to temperature without an auxiliary source of heat. Units can be constructed with either a top or side air discharge.

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Energy Module - "EM" Series

Units provide an easily applied solution for the marriage of an in floor heating system to a geothermal heat pump. Required components such as the HP, 316 SS distribution tank, domestic hot water, back-up heat, expansion tank, floor circulator, pressure gauges, thermostats and relief valves are built into one easy to install package. Available in DX versions.

Commercial W Series - Large Capacity Water-to-Water

Hot water output up to 120°F (49°C) Available with or without desuperheater for domestic hot water production. Available with or without reversing valve for heating & cooling in a single unit. Tandem Copeland scroll compressors allow staging according to load. Electronic expansion valves are standard for precise superheat control and ease of service. Integrated phase protection is standard. Very popular for use with concrete in-floor heating systems, swimming pool heating (using secondary heat exchanger), or any other application where large quantities of hot water are required. Suction line accumulator, liquid line receiver, high efficiency 316SS brazed plate heat exchangers, replaceable core filter dryer and sight glass are standard equipment on all models. Available in capacities from 100,000 Btu (9 ton) up to 850,000 Btu (65 tons).

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If you have liked what you have heard so far, going with a GeoNRG Geothermal HVAC System is not complicated. First, you would start by having a mandatory *Manual J (Version 8)* calculation done for your home or building (this is needed for your Energy Star rebate and could aid you in determining additional, low cost energy savings for your home). You can have your HVAC contractor do this or we can recommend a Manual J provider to you. If there is no information on underground conditions (e.g. - septic survey, etc.) a geo-tech or ground penetrating radar survey may be required.

After reviewing your existing system, your Manual J provider may recommend a number of upgrades to your home (duct work, insulation) so as to maximize and create the best and most energy efficient building envelope practical. GeoEnergy of New York can recommend a contractor who can and such upgrades can be a part of your Energy Star program.

Once your site is ready (manual J complete, etc.), we will size the compressor system, the air handler and the best, most economical ground heat exchange system for your site (water source or dx). This will come in the form of a draft proposal that will include the total cost of all of the equipment and labor to install the indoor portion; we will also give you a draft budget for the excavation work required.

Once accepted, we will do a mark out survey of your underground requirements and hazards and inform you of any issues at your site however, due to the

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limitations of the maneuvering of the drill vehicle, some tree trimming/removal may be necessary, some fencing may need to be temporarily removed and replaced, etc. You can use your existing landscaper to do this work or we can recommend qualified personnel to perform this extra work.

Once the entire site requirements have been met, we will deliver the indoor components to your building for the to often pre install or install those concurrent with the outdoor portion. GeoEnergy of New York will delver and install the underground heat exchange system and then complete all indoor and outdoor connections, test all and start up the system.

Please see following GeoNRG's Quick Quote Questionnaire to see what we will need to get you started towards the process. Just fill it out and return it to us and we will get back to you with our initial recommendations and a Quick Quote with which we can establish a budget for your application. There is no obligation for this service.

GeoEnergy of New York thanks you for your interest and we all here look forward to working with you in the very near future.

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1520 Ocean Avenue Bohemia, NY
631-319-0390
www.geonrgny.com

Cutting Edge Geothermal HVAC
Systems – Design – Installation – Service
Residential & Commercial

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GENY Quick-Quote Survey

Please answer all and if you are unsure of any response please indicate "unknown". The more complete the Survey the more accurate our estimate will be.

Name: _____

Address:_____

Contact preferred, phone or email: _____

Year of home built, indicate year renovated if applicable: _____

Approximate total square footage that is heated & cooled: _____

Is you home built on basement (full or partial; please indicate), crawl space, slab or piles (indicate)_____

Is your basement included in the above figure? _____

Excluding the basement or crawl or other how may floors do you have? _____

Current Cooling System (central, window, mini-split): _____

Ductwork condition (excellent, good, poor): _____

Is the ductwork in an unconditioned area? (e.g. attic)?_____

Cooling system size (btuh), make, model # and age: _____

Current heating system (natural gas, oil, propane, electric resistance or heat pump):_____

Is the heating system baseboard, air or other (specify): _____

Any insulation (wall; basement ceiling; attic; or roof) - list all known:_____

Are there two zones or more, if so how many: _____

Interested installing a geothermal system soon & when: _____

Please fill out this form and send electronically to: tony@geonrgny.com

or fax to 631 589-4384

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GeoEnergy of New York
1520 Ocean Avenue Bohemia, NY 11716

Appendix

A. GeoNRG™ DX vs. Other GHP Technologies

Feature/Requirement	GeoColumn DX to Water Bath	Super G / Mark-K DX to Earth Contact	Water Source Open Loop	Water Source Closed Loop
Performance, AHRI 3-ton single stage (DX= Advanced; WS = WF Versatech Ultra)	4.0 COP 19.3 EER	4.0 COP 19.3 EER	4.3 COP 23 EER	3.7 COP 17.5 EER
Area required/ton	100 SF	horizontal-450 SF vertical-3 x 100 SF	supply well requires 100 ft separation from downstream	horizontal- 1000 SF vertical-3 x 200'/300'
Installation time for 3-ton retrofit (days)	3 to 4	4 to 5	5+	5+
Drill depth	23'	6' - 100'	to aquifer table	200'-300'+
Drill equipment	pressure drill rig, excavator & hydro vac	excavation, borehole & directional	water well	water well
DEC drill permit req.?	N	Y	Y	Y
Case boreholes (normal soil)?	N	Y	Y	Y
Case boreholes (saturated soil)	Y	Y	Y	Y
Grout boreholes?	N	Y	Y	Y
Mud drill?	N	N	Y	Y
Heat Exchange (HX) wall temp., heating	>32F	<32F	<32F	<32F
HX wall temp., cooling	<90F	>120F	>120F	>120F
HX connection	refrigerant	refrigerant	water*	water*
*Glycol/methanol (anti-freeze) req.?	N	N	Y	Y
Water pump req.?	N	N	Y	Y
Compressor refrigerant req.?	Y	Y	Y	Y
Amount of 410a required for 3-ton (lbs)?	12	30	8	8
Sacrificial HX required?	N	N	Y	N
Aquifer temp impact?	N	possilbe	Y	possible
Potential aquifer ground water impact?	N	possilbe	Y	Y
HX engineering expertise req.?	N	Y	Y	Y
Plumbing expertise req.?	N	N	Y	Y
HX assembly	factory	field	field	field
HX field repairable?	Y	N	N	N
HX removable?	Y	N	N	N
HX recyclable?	Y	N	N	N
Afterlife residues?	N	Y	Y	Y
failure = total reinstall?	N	Y	Y	Y
Appox. cost/ton/in&outdoor/ton before any rebates, credits or extras	$9,500	$9,500+ excavation depth dependent	$9,000+ well depth dependent	approx $11,500+ well depth dependent

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B. Testing and Accreditation of the GeoColumn

GeoEnergy Enterprises has extensively tested and refined the patented GeoColumn concept, which emerged from the proof of concept phase in 2001, to the high tech, commercialized product that it is today. It is the only "plug and play," factory-assembled and factory-warrantied geothermal heat exchanger known.

During that period the following developmental milestones have been successfully completed:

- In 2001 the prestigious Steven Winter Associates (SWA) found the GeoColumn concept a novel and unique approach to ground source heat exchange. SWA then independently sponsored an R&D program for the Long Island Power Authority (LIPA) and then provided an independent, third party, 5-year evaluation of the GeoColumn heat exchanger.

- The first phase tested GeoColumn with a proof-of-concept model, installed at Hofstra University in Uniondale, NY.

- The second phase tested the heat transfer performances of various types and sizes of water containment vessels in a building on the Sands Point Preserve in the Town of North Hempstead in NY.

- Based upon these promising results, a refined mathematical model was developed and installed in Professor Duane Brun's heat transfer laboratory at the Engineering Department at the University of Tennessee in Knoxville (UTK). The effects of heat convection on the fluid mass were proven and then simulated AHRI testing was successfully performed. SWA third party review of the data indicated the UTK's 3-ton GeoColumn system performed as well as conventional geothermal systems using either direct exchange or water source technologies.

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- The third phase installed this improved design at residential and commercial locations on Long Island in Suffolk County, NY. One was at a residential location for a Habitat For Humanity house. Another one was at a commercial location (Empire Clean Energy Supply) that has been in continuous, monitored operation since 2005.

- The Air-Conditioning, Heating, and Refrigeration Institute (AHRI) has recognized the revolutionary nature of GeoColumn by creating a new category of direct exchange heat exchange: *Direct Exchange via Water.*

- The Long Island Power Authority (LIPA) has recognized GeoColumn as a unique and viable geothermal heating and cooling system since 2009, when it received special mention in the title of the LIPA "Customer Rebate Application Form LIPA Residential Geothermal & GeoColumn® Program."

- In 2012 GENY partnered with Maritime Geothermal of New Brunswick to market Maritime's unique DX HVAC systems, utilizing the GeoColumn heat exchanger, under the GeoNRG™ brand in the USA.

- Maritime has been marketing DX HVAC systems successfully in the Canadain market since 1985 with thousands of successful installations of its geothermal heat pumps since then.

- In 2012 all residential models of the GeoNRG product line were ENERGY STAR® and UL certified.

- As such EPA's ENERGY STAR® program has recognized the GeoColumn-based GeoNRG™ brand of HVAC equipment as a *bona fide* Energy Star Certified, geothermal energy efficient technology and product.

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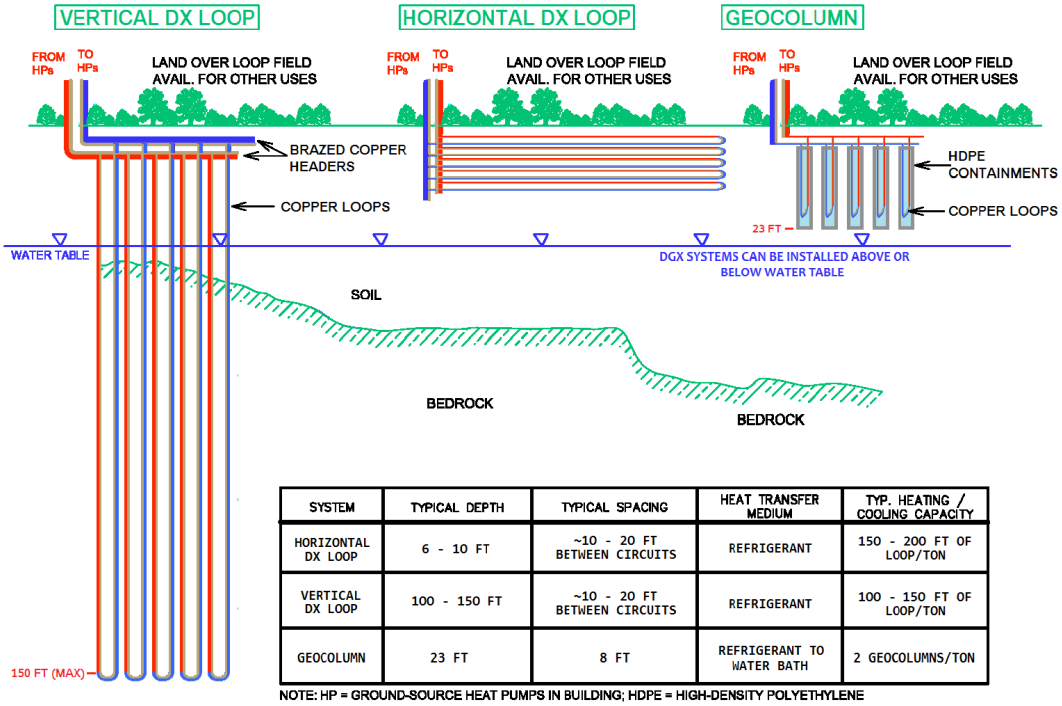
C. Direct Exchange Models

DIRECT GEOEXCHANGE (DGX) HEAT EXCHANGERS



SYSTEM	TYPICAL DEPTH	TYPICAL SPACING	HEAT TRANSFER MEDIUM	TYP. HEATING / COOLING CAPACITY
HORIZONTAL DX LOOP	6 - 10 FT	~10 - 20 FT BETWEEN CIRCUITS	REFRIGERANT	150 - 200 FT OF LOOP/TON
VERTICAL DX LOOP	100 - 150 FT	~10 - 20 FT BETWEEN CIRCUITS	REFRIGERANT	100 - 150 FT OF LOOP/TON
GEOCOLUMN	23 FT	8 FT	REFRIGERANT TO WATER BATH	2 GEOCOLUMNS/TON

NOTE: HP = GROUND-SOURCE HEAT PUMPS IN BUILDING; HDPE = HIGH-DENSITY POLYETHYLENE

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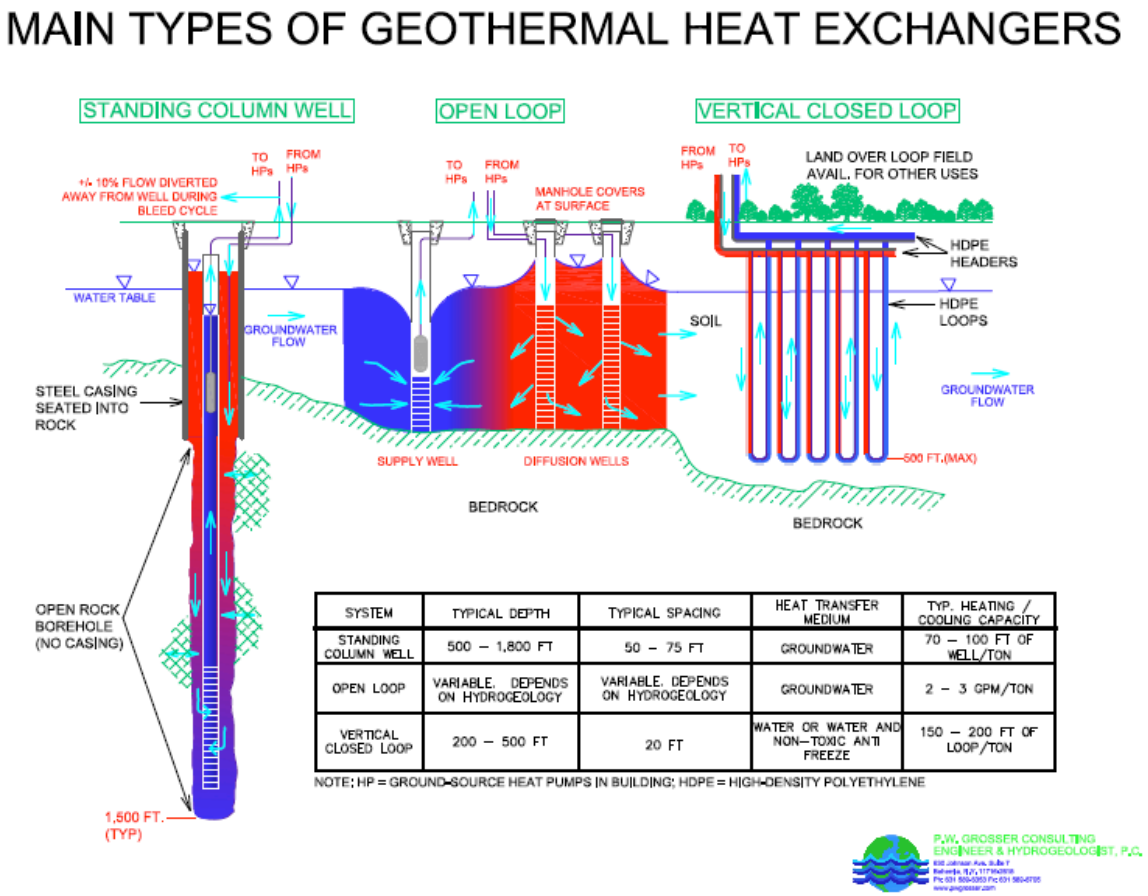

SYSTEM	TYPICAL DEPTH	TYPICAL SPACING	HEAT TRANSFER MEDIUM	TYP. HEATING / COOLING CAPACITY
STANDING COLUMN WELL	500 – 1,800 FT	50 – 75 FT	GROUNDWATER	70 – 100 FT OF WELL/TON
OPEN LOOP	VARIABLE. DEPENDS ON HYDROGEOLOGY	VARIABLE. DEPENDS ON HYDROGEOLOGY	GROUNDWATER	2 – 3 GPM/TON
VERTICAL CLOSED LOOP	200 – 500 FT	20 FT	WATER OR WATER AND NON–TOXIC ANTI FREEZE	150 – 200 FT OF LOOP/TON

The above image provided complements of PW Grosser Bohemia, NY

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E. GeoNRG Equipment Warranty

GeoEnergy of New York
Residential Warranty Overview

Standard Warranty Overview

The standard warranty applies to units manufactured after February 15, 2010. See GeoEnergy's **Limited Express Residential Warranty Certificate** for specific coverage and limitations.

GeoEnergy's residential class heat pumps are backed by a ten year limited warranty on major refrigerant circuit components and a five-year limited warranty on all remaining components. Accessories such as, thermostats, water valves, pump modules & electric heaters carry a five-year limited warranty when installed with GeoEnergy units. Accessories, when purchased separately, will only be covered under warranty for one year from the date of purchase.

GeoEnergy backs up its commitment to quality by including a **service labor allowance** for the first five years on the compressor and major refrigerant circuit parts and two years on all other parts, including thermostats, auxiliary electric heaters and geothermal pumping modules when installed and purchased with our geothermal units.

A copy of the installation start up record endorsed by the owner and dealer/installer must be forwarded to GeoEnergy within 90 days of installation in order for the warranty to apply.

(Optional) Extended Residential Labor Warranty

List Price - $1200 + applicable taxes

This optional extended warranty offers additional length of term protection to the consumer by offsetting service labor costs for up to 10 years. See schedule "A" for the allowance amounts and term coverage. To obtain this warranty, the home owner must complete the application and submit to GeoEnergy along with payment of $1200 + applicable taxes. This coverage must be purchased within 90 days of unit installation, see **Extended Residential Labor Warranty Certificate** for details.

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2010 Repair / Replacement Labor Allowance Schedule A*	Labor Allowance		Allowance Term	
	Hours	Dollars	Standard	ERSLW***
Air coil replacement	6	$300	5 years	10 years
Compressor replacement	5	$250	5 years	10 years
Water coil replacement	6	$300	5 years	10 years
Hot water generator coil replacement	5	$250	5 years	10 years
Reversing valve body replacement	5	$250	5 years	10 years
Expansion valve replacement	5	$250	5 years	10 years
Refrigerant leak (brazing required)	5	$250	2 years	5 years
Pressure switch replacement	1	$50	2 years	5 years
Blower motor replacement	1	$50	2 years	5 years
Internal water leak repair – loop circuit	3	$150	2 years	5 years
External Water Value Replacement – open loop	1.5	$75	2 years	5 years
Water pump or valve replacement – ground loop circuit	3	$150	2 years	5 years
Internal water leak repair – hot water circuit	1.5	$75	2 years	5 years
Water pump replacement-hot water	1	$50	2 years	5 years
Electronic control board replacement	1	$50	2 years	5 years
Thermostat replacement	1	$50	2 years	5 years
Blower wheel replacement	1.5	$75	2 years	5 years
Noise repair	1	$50	2 years	5 years
All other warranty components replacement	1	$50	2 years	5 years
Diagnostic allowance	.5	$25	2 years	5 years
Travel allowance – 25 miles (40km) or less – one way	.5	$25	**	**
Travel allowance – over 25 miles (40km) – one way	1	$50	**	**
Refrigerant allowance – R22	$ 6 / lb.		**	**
Refrigerant allowance – R410a	$ 13 / lb.		**	**

*** Extended Residential Service Labor Warranty
** Same time period as covered repair or replacement
*Eligibility: The 2010 warranty and labour allowance schedule applies only to GeoEnergy units manufactured after February 15 , 2010

1. All allowances requiring entry into or repair of the refrigerant circuit includes evacuation, reclaim, recharge and drier change.
2. Allowance for compressor replacement includes cleanup, evacuation, reclaim, recharge, and drier change.
3. Noise repair paid only when due to internal component failure, malfunction, or misalignment.
4. Diagnostic allowance will be paid only in conjunction with a covered replacement or repair.
5. Only one (1) travel allowance will be paid in conjunction with a covered replacement or repair.
6. Claims with multiple component replacements:
   - Most significant component will receive allowance per schedule above
   - Each additional component will receive an allowance of 0.5 hours
   - Only one diagnostic claim allowed even for multiple component replacement.
7. Allowed hours are total man-hours.
8. Pre-approval is required if anticipated claim exceeds $300.
9. All claims must be submitted within 90 days of failure date.
10. Be prepared to submit service invoices and/or records upon request.

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GENY ENTERPRISES
LIMITED EXPRESS RESIDENTIAL WARRANTY

It is expressly understood that unless a statement is specifically identified as a warranty, statements made by GeoEnergy of New York, a company registered in the state of New York, ("GENY") or its representatives, relating to GENY's products, whether oral, written or contained in any sales literature, catalogue or agreement, are not express warranties and do not form a part of the basis of the bargain, but are merely GENY's opinion or commendation of GENY's products.

EXCEPT AS SPECIFICALLY SET FORTH HEREIN, THERE IS NO EXPRESS WARRANTY AS TO ANY OF GENY'S PRODUCTS.

GENY MAKES NO WARRANTY OF MERCHANTABILITY OF THE GOODS OR OF THE FITNESS OF THE GOODS FOR ANY PARTICULAR PURPOSE.

LIMITED EXPRESS RESIDENTIAL WARRANTY- PARTS

GeoEnergy of New York (hereinafter referenced as "GENY") warrants its Residential Class products, purchased and retained in the United States of America and Canada, to be free from defects in material and workmanship under normal use and maintenance as follows:
(1) Air conditioning, heating and/or heat pump units built or sold by GENY Enterprises (hereinafter referenced as "GENY units") for five (5) years from the Warranty Inception Date (as defined below).
(2) Thermostats, auxiliary electric heaters and geothermal pumping modules built or sold by GENY, when installed with GENY Units, for five (5) years from the Warranty Inception Date (as defined below).
(3) Sealed refrigerant circuit components of GENY Units (which components only include the compressor, refrigerant to air/water heat exchangers, reversing valve body and refrigerant metering device) for ten (10) years from the Warranty Inception Date (as defined below).
(4) Other accessories and parts built or sold by GENY, when installed and purchased with GENY Units, for five (5) years from the date of shipment from GENY.
(5) Other accessories, when purchased separately, for (1) year from the date of shipment from GENY.

The "Warranty Inception Date" shall be the date of original unit installation, as per the date on the installation start up record or six (6) months from date of unit shipment from GENY, whichever comes first.

To make a claim under this warranty, parts must be returned to GENY in Bohemia, NY, freight prepaid, no later than ninety (90) days after the date of the failure of the part. If GENY determines the part to be defective and within GENY's Limited Express Residential Warranty, GENY shall, when such part has been either replaced or repaired, return such to a factory recognized distributor, dealer or service organization, freight prepaid. The warranty on any part repaired or replaced under warranty expires at the end of the original warranty period.

LIMITED EXPRESS RESIDENTIAL WARRANTY- LABOR

This Limited Express Residential Labor Warranty shall cover the **labor** incurred by GENY authorized service personnel in connection with the installation of a new or repaired warranty part that is covered by this Limited Express Residential Warranty only to the extent specifically set forth in the current **labor** allowance schedule "A" provided by GENY's Warranty Department and only as follows:
(1) GENY Units for two (2) years from the Warranty Inception Date.
(2) Thermostats, auxiliary electric heaters and geothermal pumping modules built or sold by GENY, when installed with GENY Units, for two (2) years from the Warranty Inception Date.
(3) Sealed refrigerant circuit components of GENY Units (which components only include the compressor, refrigerant to air/water heat exchangers, reversing valve body and refrigerant metering device) for five (5) years from the Warranty Inception Date.

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Labor costs are not covered by this Limited Express Residential Warranty to the extent they **exceed** the amount allowed under said allowance schedule, they are not specifically provided for in said allowance schedule, they are not the result of work performed by GENY authorized service personnel, they are incurred in connection with a part not covered by this Limited Express Residential Warranty, or they are incurred more than the time periods set forth in this paragraph after the Warranty Inception Date.

This warranty does not cover and does not apply to:
(1) Air filters, fuses, refrigerant, fluids, oil.
(2) Products relocated after initial installation.
(3) Any portion or component of any system that is not supplied by GENY, regardless of the cause of the failure of such portion or component.
(4) Products on which the unit identification tags or labels have been removed or defaced.
(5) Products on which payment to GENY, or to the owner's seller or installing contractor, is in default.
(6) Products subjected to improper or inadequate installation, maintenance, repair, wiring or voltage conditions.
(7) Products subjected to accident, misuse, negligence, abuse, fire, flood, lightning, unauthorized alteration, misapplication, contaminated or corrosive air or liquid supply, operation at abnormal air or liquid temperatures or flow rates, or opening of the refrigerant circuit by unqualified personnel.
(8) Mold, fungus or bacteria damages.
(9) Corrosion or abrasion of the product.
(10) Products supplied by others.
(11) Products which have been operated in a manner contrary to GENY's printed instructions.
(12) Products which have insufficient performance as a result of improper system design or improper application, installation, or use of GENY's products.
(13) Electricity or fuel costs, or any increases or unrealized savings in same, for any reason whatsoever.

Except for the limited **labor** allowance coverage set forth above in Schedule A, GENY is not responsible for:
(1) The costs of any fluids, refrigerant or system components **supplied by others**, or associated **labor** to repair or replace the same, which is incurred as a result of a defective part covered by GENY's Limited Residential Warranty.
(2) The costs of **labor**, refrigerant, materials or service incurred in diagnosis and removal of the defective part, or in obtaining and replacing the new or repaired part.
(3) Transportation costs of the defective part from the installation site to GENY, or of the return of that part if not covered by GENY's Limited Express Residential Warranty.
(4) The costs of normal maintenance.

This Limited Express Residential Warranty applies to GENY Residential Class products manufactured on or after February 15, 2010.

GENY'S LIABILITY UNDER THE TERMS OF THIS LIMITED WARRANTY SHALL APPLY ONLY TO THE GENY UNITS REGISTERED WITH GENY THAT BEARS THE MODEL AND SERIAL NUMBERS STATED ON THE INSTALLATION START UP RECORD, AND GENY SHALL NOT, IN ANY EVENT, BE LIABLE UNDER THE TERMS OF THIS LIMITED WARRANTY UNLESS THIS INSTALLATION START UP RECORD HAS BEEN ENDORSED BY OWNER & DEALER/INSTALLER AND RECIEVED BY GENY WITHIN 90 DAYS OF START UP.

Limitation: This Limited Express Residential Warranty is given in lieu of all other warranties. If, notwithstanding the disclaimers contained herein, it is determined that other warranties exist, any such express warranty, including without limitation any express warranties or any implied warranties of fitness for particular purpose and merchantability, shall be limited to the duration of the Limited Express Residential Warranty.

LIMITATION OF REMEDIES

In the event of a breach of the Limited Express Residential Warranty, GENY will only be obligated at GENY's option to repair the failed part or unit, or to furnish a new or rebuilt part or unit in exchange for the part or unit which has failed. If after written notice to GENY at Katonah, NY, of each defect, malfunction or other failure, and a reasonable number of attempts by GENY to correct the defect, malfunction or other failure, and the remedy fails of its essential purpose, GENY shall refund the purchase price paid to GENY in exchange for the return of the sold good(s). Said refund shall be the maximum liability of GENY.

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THIS REMEDY IS THE SOLE AND EXCLUSIVE REMEDY OF THE BUYER OR PURCHASER AGAINST GENY FOR BREACH OF CONTRACT, FOR THE BREACH OF ANY WARRANTY OR FOR GENY'S NEGLIGENCE OR IN STRICT LIABILITY.

LIMITATION OF LIABILITY
GENY shall have no liability for any damages if GENY's performance is delayed for any reason or is prevented to any extent by any event such as, but not limited to: any war, civil unrest, government restrictions or restraints, strikes, or work stoppages, fire, flood, accident, shortages of transportation, fuel, material, or labor, acts of God or any other reason beyond the sole control of GENY.

GENY EXPRESSLY DISCLAIMS AND EXCLUDES ANY LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGE IN CONTRACT, FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, OR IN TORT, WHETHER FOR GENY's NEGLIGENCE OR AS STRICT LIABILITY.

OBTAINING WARRANTY PERFORMANCE
Normally, the dealer or service organization who installed the products will provide warranty performance for the owner. Should the installer be unavailable, contact any GENY recognized distributor, dealer or service organization. If assistance is required in obtaining warranty performance, write or call:

GeoEnergy of New York • Customer Service • info@geoenergy.com • 613-319-0390 •

NOTE: Some states or Canadian provinces do not allow limitations on how long an implied warranty lasts, or the limitation or exclusions of consequential or incidental damages, so the foregoing exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state and from Canadian province to Canadian province.

Please refer to the GENY Installation, Operation and Maintenance Manual for operating and maintenance instructions.

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GENY ENTERPRISES
EXTENDED RESIDENTIAL LABOR WARRANTY

It is expressly understood that unless a statement is specifically identified as a warranty, statements made by GeoEnergy Enterprises, a corporation registered in Bohemia, New York, ("GENY") or its representatives, relating to GENY's products, whether oral, written or contained in any sales literature, catalogue or agreement, are not express warranties and do not form a part of the basis of the bargain, but are merely GENY's opinion or commendation of GENY's products.

EXCEPT AS SPECIFICALLY SET FORTH HEREIN, THERE IS NO EXTENDED WARRANTY AS TO ANY OF GENY'S PRODUCTS.

GENY MAKES NO WARRANTY OF MERCHANTABILITY OF THE GOODS OR OF THE FITNESS OF THE GOODS FOR ANY PARTICULAR PURPOSE.

EXTENDED RESIDENTIAL LABOR WARRANTY- PARTS COVERAGE AS PER LIMITED EXPRESS RESIDENTIAL WARRANTY

GENY warrants its Residential Class products, purchased and retained in the United States of America and Canada, to be free from defects in material and workmanship under normal use and maintenance as follows:
(1) Air conditioning, heating and/or heat pump units built or sold by GENY ("GENY Units") for ten (10) years from the Warranty Inception Date (as defined below).
(2) Thermostats, auxiliary electric heaters and geothermal pumping modules built or sold by GENY, when installed with GENY Units, for five (5) years from the Warranty Inception Date (as defined below).
(3) Sealed refrigerant circuit components of GENY Units (which components only include the compressor, refrigerant to air/water heat exchangers, reversing valve body and refrigerant metering device) for ten (10) years from the Warranty Inception Date (as defined below).
(4) Other accessories and parts built or sold by GENY, when installed and purchased with GENY Units, for five (5) years from the date of shipment from GENY.
(5) Other accessories, when purchased separately, for (1) year from the date of shipment from GENY.

The "Warranty Inception Date" shall be the date of original unit installation, or six (6) months from date of unit shipment from GENY, whichever comes first. Extended Factory Service Labor Warranty must be purchased within 90 days of installation.

To make a claim under this warranty, parts must be returned to GENY in Bohemia, New York, freight prepaid, no later than ninety (90) days after the date of the failure of the part. If GENY determines the part to be defective and within GENY's Limited Express Residential Warranty, GENY shall, when such part has been either replaced or repaired, return such to a factory recognized distributor, dealer or service organization, freight prepaid. The warranty on any part repaired or replaced under warranty expires at the end of the original warranty period.

EXTENDED RESIDENTIAL LABOR WARRANTY- LABOR

This Extended Residential Labor Warranty shall cover the **labor** incurred by GENY authorized service personnel in connection with the installation of a new or repaired warranty part that is covered by this Extended Residential Labor Warranty only to the extent specifically set forth in the current **labor** allowance schedule "A" provided by GENY's Warranty Department and only as follows:
(1) GENY Units for five (5) years from the Warranty Inception Date.
(2) Thermostats, auxiliary electric heaters and geothermal pumping modules built or sold by GENY, when installed and purchased with GENY Units, for five (5) years from the Warranty Inception Date.
(3) Sealed refrigerant circuit components of GENY Units (which components only include the compressor, refrigerant to air/water heat exchangers, reversing valve body and refrigerant metering device) for ten (10) years from the Warranty Inception Date.

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Labor costs are not covered by this Extended Residential Labor Warranty to the extent they **exceed** the amount allowed under said allowance schedule, they are not specifically provided for in said allowance schedule, they are not the result of work performed by GENY authorized service personnel, they are incurred in connection with a part not covered by this Extended Residential Labor Warranty, or they are incurred more than the time periods set forth in this paragraph after the Warranty Inception Date.

This warranty does not cover and does not apply to:
(1) Air filters, fuses, refrigerant, fluids, oil.
(2) Products relocated after initial installation.
(3) Any portion or component of any system that is not supplied by GENY, regardless of the cause of the failure of such portion or component.
(4) Products on which the unit identification tags or labels have been removed or defaced.
(5) Products on which payment to GENY, or to the owner's seller or installing contractor, is in default.
(6) Products subjected to improper or inadequate installation, maintenance, repair, wiring or voltage conditions.
(7) Products subjected to accident, misuse, negligence, abuse, fire, flood, lightning, unauthorized alteration, misapplication, contaminated or corrosive air or liquid supply, operation at abnormal air or liquid temperatures or flow rates, or opening of the refrigerant circuit by unqualified personnel.
(8) Mold, fungus or bacteria damages.
(9) Corrosion or abrasion of the product.
(10) Products supplied by others.
(11) Products which have been operated in a manner contrary to GENY's printed instructions.
(12) Products which have insufficient performance as a result of improper system design or improper application, installation, or use of GENY's products.
(13) Electricity or fuel costs, or any increases or unrealized savings in same, for any reason whatsoever.

Except for the limited **labor** allowance coverage set forth above in Schedule A, GENY is not responsible for:
(1) The costs of any fluids, refrigerant or system components **supplied by others**, or associated **labor** to repair or replace the same, which is incurred as a result of a defective part covered by GENY's Extended Factory Service Labor Warranty.
(2) The costs of **labor**, refrigerant, materials or service incurred in diagnosis and removal of the defective part, or in obtaining and replacing the new or repaired part.
(3) Transportation costs of the defective part from the installation site to GENY, or of the return of that part if not covered by GENY's Extended Residential Labor Warranty.
(4) The costs of normal maintenance.

This Extended Residential Labor Warranty is **available** to GENY Residential Class products manufactured on or after February 15, 2010.

GENY'S LIABILITY UNDER THE TERMS OF THIS EXTENDED WARRANTY SHALL APPLY ONLY TO THE GENY UNITS REGISTERED WITH GENY THAT BEARS THE MODEL AND SERIAL NUMBERS STATED ON THE INSTALLATION START UP RECORD, AND GENY SHALL NOT, IN ANY EVENT, BE LIABLE UNDER THE TERMS OF THIS EXTENDED WARRANTY UNLESS THIS INSTALLATION START UP RECORD HAS BEEN ENDORSED BY OWNER, DEALER/INSTALLER AND RECIEVED BY GENY LIMITED WITHIN 90 DAYS OF START UP.

Limitation: This Extended Residential Labor Warranty is given in lieu of all other warranties. If, notwithstanding the disclaimers contained herein, it is determined that other warranties exist, any such express warranty, including without limitation any express warranties or any implied warranties of fitness for particular purpose and merchantability, shall be limited to the duration of the Extended Residential Labor Warranty.

LIMITATION OF REMEDIES
In the event of a breach of the Extended Residential Labor Warranty, GENY will only be obligated at GENY's option to repair the failed part or unit, or to furnish a new or rebuilt part or unit in exchange for the part or unit which has failed. If after written notice to GENY in Bohemia, New York of each defect, malfunction or other failure, and a reasonable number of attempts by GENY to correct the defect, malfunction or other failure, and the remedy fails of its essential purpose, GENY shall refund the purchase price paid to GENY in exchange for the return of the sold good(s). Said refund shall be the maximum liability of GENY.

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THIS REMEDY IS THE SOLE AND EXCLUSIVE REMEDY OF THE BUYER OR PURCHASER AGAINST GENY FOR BREACH OF CONTRACT, FOR THE BREACH OF ANY WARRANTY OR FOR GENY'S NEGLIGENCE OR IN STRICT LIABILITY.

LIMITATION OF LIABILITY
GENY shall have no liability for any damages if GENY's performance is delayed for any reason or is prevented to any extent by any event such as, but not limited to: any war, civil unrest, government restrictions or restraints, strikes, or work stoppages, fire, flood, accident, shortages of transportation, fuel, material, or labor, acts of God or any other reason beyond the sole control of MG.

GENY EXPRESSLY DISCLAIMS AND EXCLUDES ANY LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGE IN CONTRACT, FOR BREACH OF ANY EXTENDED OR IMPLIED WARRANTY, OR IN TORT, WHETHER FOR GENY's NEGLIGENCE OR AS STRICT LIABILITY.

OBTAINING WARRANTY PERFORMANCE
Normally, the dealer or service organization who installed the products will provide warranty performance for the owner. Should the installer be unavailable, contact any GENY recognized distributor, dealer or service organization. If assistance is required in obtaining warranty performance, write or call:

GeoEnergy of New York • Customer Service • info@geoenergy.com • 631-319-0390 •

NOTE: Some states or Canadian provinces do not allow limitations on how long an implied warranty lasts, or the limitation or exclusions of consequential or incidental damages, so the foregoing exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state and from Canadian province to Canadian province.

Please refer to the GENY Installation, Operation and Maintenance Manual for operating and maintenance instructions.

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G. GeoColumn Warranty

LIMITED EXPRESS GeoColumn® WARRANTY

It is expressly understood that unless a statement is specifically identified as a warranty, statements made by GeoEnergy of New York a company registered in the State of New York (GENY), or its representatives, relating to GENY's products, whether oral, written or contained in any sales literature, catalogue or agreement, are not express warranties and do not form a part of the basis of the bargain, but are merely GENY's opinion or commendation of GENY's products.

EXCEPT AS SPECIFICALLY SET FORTH HEREIN, THERE IS NO EXPRESS WARRANTY AS TO ANY OF GENY'S PRODUCTS.

GENY MAKES NO WARRANTY AGAINST LATENT DEFECTS.

GENY MAKES NO WARRANTY OF MERCHANTABILITY OF THE GOODS OR OF THE FITNESS OF THE GOODS FOR ANY PARTICULAR PURPOSE.

LIMITED EXPRESS GEOCOLUMN® WARRANTY - PARTS
GENY warrants its GeoColumn® Units purchased and retained in the United States of America and Canada, to be free from defects in material and workmanship under normal use and maintenance as follows:

Factory sealed GeoColumn® ground heat exchanger's containment and refrigerant circuit components (which components only include the entire exterior HDPE containment the HDPE interior components, and the refrigerant to water heat exchangers) for ten (10) years from the Warranty Inception Date (as defined below).

The "Warranty Inception Date" shall be the date of original unit installation, as per the date on the installation Startup Record or six (6) months from date of unit shipment from GENY, whichever comes first.

To make a claim under this warranty, parts must be returned to GENY in Bohemia, New York, freight prepaid, no later than ninety (90) days after the date of the failure of the part. If GENY determines the part to be defective and within GENY's Limited Express GeoColumn® Warranty, GENY shall, when such part has been either replaced or repaired, return such to a factory recognized distributor, dealer or service organization, freight prepaid, replace the part. The warranty on any part repaired or replaced under warranty expires at the end of the original warranty period.

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LIMITED EXPRESS GEOCOLUMN® WARRANTY – LABOR (REMOVAL, DRILLING AND REPLACEMENT)

This Limited Express GeoColumn® Labor Warranty shall cover **the labor** incurred by GENY authorized service personnel in connection with the installation of a new or repaired warranty part that is covered by this Limited Express GeoColumn® Warranty only to the extent specifically set forth in the current labor allowance schedule "A" provided by GENY's Warranty Department and only as follows:

Factory sealed GeoColumn® ground heat exchanger's containment and refrigerant circuit components (which components only include the entire exterior HDPE containment the HDPE interior components, and the refrigerant to water heat exchangers) for ten (10) years from the Warranty Inception Date.

Labor costs are not covered by this Limited Express GeoColumn® Warranty to the extent they exceed the amount allowed under said allowance schedule, they are not specifically provided for in said allowance schedule, they are not the result of work performed by GENY authorized service personnel, they are incurred in connection with a part not covered by this Limited Express GeoColumn® Warranty, or they are incurred more than the time periods set forth in this paragraph after the Warranty Inception Date.

This warranty does not cover and does not apply to:
(1) Refrigerant, fluids, oil.
(2) Products relocated after initial installation.
(3) Any portion or component of any system that is not supplied by GENY, regardless of the cause of the failure of such portion or component.
(4) Products on which the unit identification tags or labels have been removed or defaced.
(5) Products on which payment to GENY, or to the owner's seller or installing contractor, is in default.
(6) Products subjected to improper or inadequate installation, maintenance, repair, wiring or voltage conditions.
(7) Products subjected to accident, misuse, negligence, abuse, fire, flood, lightning, unauthorized alteration, misapplication, contaminated or corrosive liquid or air supply, operation at abnormal air or liquid temperatures or flow rates, or opening of the refrigerant circuit by unqualified personnel.
(8) Mold, fungus or bacteria damage
(9) Corrosion or abrasion of the product.
(10) Products supplied by others.
(11) Products which have been operated in a manner contrary to GENY's printed instructions.
(12) Products which have insufficient performance as a result of improper system design or improper application, installation, or use of GENY's products.

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(13) Electricity or fuel, or any increases or unrealized savings in same, for any reason whatsoever.

Except for the limited labor allowance coverage set forth above, GENY is not responsible for:
(1) The costs of fluids, refrigerant or system components supplied by others, or associated labor to repair or replace the
same, which is incurred as a result of a defective part covered by GENY's Limited GeoColumn® GeoColumn® Warranty.
(2) The costs of labor, refrigerant, materials or service incurred in diagnosis and removal of the defective part, or in obtaining
and replacing the new or repaired part.
(3) Transportation costs of the defective part from the installation site to GENY, or of the return of that part if not covered by
GENY's Limited Express GeoColumn® GeoColumn® Warranty.
(4) The costs of normal maintenance.

This Limited Express GeoColumn® Warranty applies to GENY GeoColumn® products manufactured on or after November 15, 2012.

GENY'S LIABILITY UNDER THE TERMS OF THIS LIMITED WARRANTY SHALL APPLY ONLY TO THE GeoColumn® UNITS REGISTERED WITH GENY THAT BEARS THE MODEL AND SERIAL NUMBERS STATED ON THE INSTALLATION START UP RECORD, AND GENY SHALL NOT, IN ANY EVENT, BE LIABLE UNDER THE TERMS OF THIS LIMITED WARRANTY UNLESS THIS INSTALLATION START UP RECORD HAS BEEN ENDORSED BY OWNER & DEALER/INSTALLER AND RECEIVED BY GENY LIMITED WITHIN 90 DAYS OF START UP.

Limitation: This Limited Express GeoColumn® Warranty is given in lieu of all other warranties. If, not withstanding the disclaimers contained herein, it is determined that other warranties exist, any such express warranty, including without imitation any express warranties or any implied warranties of fitness for particular purpose and merchantability, shall be limited to the duration of the Limited Express GeoColumn® Warranty.

LIMITATION OF REMEDIES In the event of a breach of the Limited Express GeoColumn® Warranty, GENY will only be obligated at GENY's option to repair the failed part or unit, or to furnish a new or rebuilt part or unit in exchange for the part or unit which has failed. If after written notice to GENY of each defect, mal-function or other failure, and a reasonable number of attempts by GENY to correct the defect, malfunction or other failure, and the remedy fails of its essential purpose, GENY shall refund the purchase price paid to GENY in exchange for the return of the sold good(s). Said refund shall be the maximum liability of GENY. **THIS REMEDY IS THE SOLE AND EXCLUSIVE REMEDY OF THE BUYER OR PURCHASER AGAINST GENY FOR BREACH OF CONTRACT, FOR THE**

BREACH OF ANY WARRANTY OR FOR GENY'S NEGLIGENCE OR IN STRICT LIABILITY.

LIMITATION OF LIABILITY GENY shall have no liability for any damages if GENY's performance is delayed for any reason or is prevented to any extent by any event such as, but not limited to: any war, civil unrest, government restrictions or restraints, strikes, or work stoppages, fire, flood, accident, shortages of transportation, fuel, material, or labor, acts of God or any other reason beyond the sole control of GENY.

GENY EXPRESSLY DISCLAIMS AND EXCLUDES ANY LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGE IN CONTRACT, FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, OR IN TORT, WHETHER FOR GENY's NEGLIGENCE OR AS STRICT LIABILITY.

OBTAINING WARRANTY PERFORMANCE Normally, the dealer or service organization who installed the products will provide warranty performance for the owner. Should the installer be unavailable, contact any GENY recognized dealer or service organization. If assistance is required in obtaining warranty performance, email, or call: GeoEnergy of New York info@geonrgny.com 631-319-0390. NOTE: Some states do not allow limitations on how long an implied warranty lasts, or the limitation or exclusions of consequential or incidental damages, so the foregoing exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Please refer to the GENY Installation, Installation and Service Manual for operating and maintenance instructions.

An extra-charge extended warranty option is also available. Please contact GeoEnergy of New York via the contact information in the previous paragraph for more information.

2013 Repair / Replacement Labor Allowance			
Limited Express GeoColumn Warranty			
	Labor Allowance	Allowance Term/Years	
Excavation Services	Dollars	Standard	Extended
Column Removal	$250	10	20
Column ReDrill & Replacment	$1,250	10	20
HVAC Services			
Diagnostic allowance	$50	10	20
Column Disconnect and Reconnect ($50/hr)	$100	10	20
Travel	$25	10	20
410A Allowance	$10/lb.	10	20

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